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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)
3712174-00519

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on _____

Signature _____

Typed or printed name _____

Application Number	Filed
10/567,283	February 3, 2006

First Named Inventor
Kazuaki Fukushima

Art Unit	Examiner
1793	Yun Qian

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☑ attorney or agent of record.
Registration number 46,541

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

Signature

Thomas C. Basso
Typed or printed name

312-807-4310
Telephone number

December 22, 2010
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Kazuaki Fukushima et al.
Appl. No.:	10/567,283
Conf. No.:	9786
Filed:	February 3, 2006
Title:	ION-DISSOCIATIVE FUNCTIONAL COMPOUND, METHOD FOR PRODUCTION THEREOF, IONIC CONDUCTOR, AND ELECTROCHEMICAL DEVICE
Art Unit:	1793
Examiner:	Yun Qian
Docket No.:	3712174-00519

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF

Sir:

This Pre-Appeal Brief is submitted in reply to the Final Office Action dated September 23, 2010. This Pre-Appeal Brief is filed contemporaneously with a "Pre-Appeal Brief Request for Review" and a "Notice of Appeal."

This Pre-Appeal Brief, Notice of Appeal, and Pre-Appeal Brief Request for Review are submitted in response to the rejections of Claims 29-32 and 37-39 in the Final Office Action dated September 23, 2010. Applicants assert that the Examiner's rejections in the Final Office Action rise to the level of clear error and make the case proper for pre-appeal review.

The Office Action rejected Claims 29-32 and 37-39 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,890,676 to Nuber et al. ("Nuber"). Of the rejected claims, Claims 29 and 37 are the sole independent claims. Claim 29 recites, at least in part, a composition comprising a ion-dissociative functional compound represented by a chemical formula as follows: C_m-(CF_2-Gp1)$_n$ where, m is a natural number for carbon atoms to form a spherical carbon molecule; n is a natural number; and Gp1 denotes an ion-dissociative group. Claim 37 recites, at least in part, a composition comprising an ion-dissociative functional compound having a linkage structure represented by a chemical formula as follows: C_m-CF_2-Gp2-CF_2-C_m where, m is a natural number for carbon atoms to form a spherical carbon molecule; and Gp2 denotes an ion-dissociative group. However, Nuber fails to disclose each of the elements of Claims 29 and 37.

The ion-dissociative functional compound according to the claimed invention is constructured such that the ion-dissociative group does not combine directly with the spherical carbon molecules such as fullerene nuclei having unsaturated bonds but combines indirectly with the spherical carbon molecules through a difluoromethylene group. This difluoromethylene group is derived from a methylene group by substitution of its hydrogen atom with a fluorine atom. It is chemically inert and has enhanced heat resistance. For this reason, the ion-dissociative functional compound keeps the ion-dissociative group unaffected by the unsaturated bond. Moreover, it is most thermally and chemically stable among the derivatives of spherical carbon molecules having the ion-dissociative group because the difluoromethylene group is chemically inert and has high resistance. Applicants' published specification, paragraph [0107].

The ionic conductor composition according to an embodiment as claimed is thermally and chemically stable because it is composed of the ion-dissociative functional compound. Further, the claimed ionic conductor composition densely possesses the ion-dissociative groups because the difluoromethylene group has a minimum size as a spacer group and hence a large number of the ion-dissocicative groups can be introduced into one spherical carbon molecule. Consequently, it exhibits high ion conductivity even under the condition of comparatively low humidity. Applicants' published specification, paragraph [0108].

In contrast, the Nuber reference fails to disclose or suggest the claimed invention. For example, Nuber fails to provide sufficient guidance with respect to the specific linkage of the ion-dissociative group to the spherical carbon molecules via the difluoromethylene group as claimed. Indeed, Nuber discloses that "[g]enerally, the more fluorine atoms in a spacer molecule, the more stable it will be" and "[p]resently, CF_2- CF_2-O- CF_2- CF_2 is preferred because it is very stable, as is readily commercially available." See, Nuber, col. 4, line 67 to col. 5, line 4. Moreover, the present claims require a single CF_2 group between the spherical carbon molecule and the ion-dissociative group, whereas every example disclosed in Nuber either: (a) includes a plurality of fluorinated groups between the fullerene molecule and each proton conductive functional group; or (b) includes a non-fluorinated spacer between the fullerene molecule and the proton conductive functional group. Similar arguments apply to the linkage structure recited in presently presented Claim 37, where only one CF_2 group is between each Gp_2 group and its respective spherical carbon molecule. Therefore, Nuber is distinguished Claims 29 and 37 and dependents thereof for at least the reasons discussed above.

In light of the above, Applicants respectfully submit that the rejections of Claims 29-32 and 37-39 are improper and should be reversed. Accordingly, Applicants respectfully request that a timely Notice of Allowance be issued in this case. If any additional fees are due in connection with this application as a whole, the Commissioner is authorized to deduct such fees from deposit account no. 02-1818. If such a deduction is made, please indicate the attorney docket number (3712174-00519) on the account statement.

Respectfully submitted,

K&L GATES LLP

BY _____

Thomas C. Basso
Reg. No. 46,541
Customer No. 29175

Date: December 22, 2010